

SIMTA Intermodal Terminal Facility- Stage 1

Response to Submissions -Noise and Vibration Addendum



SIMTA

SYDNEY INTERMODAL TERMINAL ALLIANCE

Part 4, Division 4.1, State Significant
Development

1 September 2015

WM Project Number: 12186-AR
Our Ref: 12186-AR_Ltr_010915_NH

Wesley Owers
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Level 4, 151 Walker Street
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Dear Wes

Re: SIMTA Stage 1 - Review of Noise Impacts for Amended Rail Link Alignment

REPORT PURPOSE

This addendum report has been prepared to provide further information on, and environmental assessment of, a proposed amendment to the Rail link as part of the SIMTA Stage 1 Proposal (the Proposal). This report has been prepared to support a Response to Submission to be prepared as part of the approval process of the Proposal for Stage Significant Development (SSD) under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This report provides an addendum to the Noise and Vibration Impact Assessment (NVIA) prepared by Wilkinson Murray dated May 2015 included within the Environmental Impact Statement (EIS) dated May 2015 prepared for the Proposal.

AMMENDMENT OVERVIEW

The Rail link is to be realigned within Commonwealth Land (including MIC Site, Moorebank Avenue and the Southern Boot Land) to respond to submissions (received during the exhibition of the EIS (28 May 2015 and 26 June 2015)) and also to reduce the overall environmental impacts of the Proposal (refer to Figure 1).

This realignment would alter the Rail link alignment to the south of the Anzac Creek Crossing, at the intersection with Moorebank Avenue and also on the MIC site (to the immediate west of Moorebank Avenue). The rail alignment would retain the 20 metre width of the Rail Link Corridor within environmentally sensitive areas, as per the Concept Plan Approval (MP 10_0193) and the EIS.

There would be no alteration to the Rail link to the north of this realignment including at the crossing of Anzac Creek, the connection to, or within the Stage 1 site. There would also be no alteration to the Rail link to the west along the MIC site, the Georges River bridge crossing, within the Glenfield Waste Facility or at the southern and northern connections to the Southern Sydney Freight Line (SSFL).

This alteration in the rail alignment would result in Moorebank Avenue being intersected by the Rail link further north of that previously identified within the EIS. An alteration would be undertaken to the

existing Moorebank Avenue road embankment to create an overbridge to accommodate the realigned Rail link.

The Rail link realignment would not generally alter the construction methodology (with the exception of the Moorebank Avenue overbridge) or the operation of the Intermodal Terminal (IMT) as previously provided, with no change to the rail traffic, road access, operational hours, workforce or overall operational procedures.

NOISE IMPACT ASSESSMENT

The proposed changes to the alignment of the Rail link will not have any effect of rail vibration levels at sensitive receivers. Accordingly, the following section investigates the effects of the amended alignment on receiver noise levels only.

Rail Noise

Effects on L_{Aeq} Rail Noise Levels

L_{Aeq} rail noise levels have been predicted for the amended rail alignment, in a manner consistent with the previous alignment, as presented in the NVIA.

Table 1 presents the predicted night time $L_{Aeq, period}$ noise levels at the most sensitive residential receivers for the operation of the previous Rail link as presented in the NVIA, and for the proposed amended rail alignment. Predictions are presented both with and without the addition of curve gains for rail squeal.

Table 1 Predicted $L_{Aeq, period}$ Rail Noise Levels at Residential Receivers

Receiver	Criteria	Excluding Curve Gains			Including Curve Gains		
		Previous	Amended	Difference	Previous	Amended	Difference
NCA1 (Wattle Grove)	40	38.4	36.8	-1.6	43.9	40.5	-3.4
NCA2 (Moorebank)	45	29.2	28.5	-0.7	33.5	31.9	-1.6
NCA3 (Casula)	40	43.8	44	0.2	46	46.1	0.1
NCA4 (Glenfield)	40	39.4	39.2	-0.2	44	43.8	-0.2

Review of Table 1 indicates that the amendment to the alignment of the Rail link has no significant effects on L_{Aeq} rail noise levels at receiver locations to the west, specifically in Casula and Glenfield. Predicted levels in Casula have increased very slightly (0.1-0.2 dBA), and this is attributed to the incorporation of refined topography in the noise model which was not currently available for the EIS. The predictions indicate minor reductions in L_{Aeq} noise levels at receivers in Moorebank and Wattle Grove. These reductions are more pronounced in the case where curve gains are modelled to account for the potential of rail squeal, and in the case of the most sensitive receivers in Wattle Grove, where the difference in predicted levels between the previous and amended rail alignments results in a significant reduction.

It is concluded that the likely effects of the proposed amendment to the alignment of the Rail link on L_{Aeq} rail noise levels are:

- No significant increases at any receivers;
- A general reduction in noise levels at receivers to the east of the SIMTA site; and,
- Decreased likelihood of noise impacts due to rail squeal at receivers in Wattle Grove.

Effects on L_{Amax} Rail Noise Levels

L_{Amax} rail noise levels have been predicted for the amended Rail link, in a manner consistent with the previous rail alignment, as presented in the NVIA.

Table 2 presents the predicted L_{Amax} noise levels at the most sensitive residential receivers for the operation of the Rail link as presented in the NVIA, and for the amended rail alignment. Predictions are presented both with and without the addition of curve gains for rail squeal.

Table 2 Predicted L_{Amax} Rail Noise Levels at Residential Receivers

Receiver	Excluding Curve Gains			Including Curve Gains		
	Previous	Amended	Difference	Previous	Amended	Difference
NCA1 (Wattle Grove)	59.1	57.1	-2	66.9	63.7	-3.2
NCA2 (Moorebank)	49.1	49.7	0.6	56	55.6	-0.4
NCA3 (Casula)	66.2	66.3	0.1	69.1	69.7	0.6
NCA4 (Glenfield)	59.5	59.1	-0.4	67.1	67.1	0

Review of Table 2 indicates that the proposed amendment to the alignment of the Rail link has no significant effects on L_{Amax} rail noise levels at receiver locations to the west, specifically in Casula and Glenfield. Some negligible differences are observed in the predicted levels within Moorebank, Casula and Glenfield, and this is attributed to the incorporation of refined topography in the noise model which was not available for the EIS. The predictions indicate negligible to minor reductions in L_{Amax} noise levels at receivers in Wattle Grove, and these reductions are more pronounced in the case where curve gains are modelled to account for the potential of rail squeal.

It is concluded that the likely effects of the proposed amendment to the alignment of the Rail link on L_{Aeq} rail noise levels are:

- No significant increases at any receivers;
- Reduction in noise levels at receivers in Wattle Grove; and,
- Decreased likelihood of noise impacts due to rail squeal at receivers in Wattle Grove.

Sleep Disturbance Impact from Rail Movements

During submissions for the EIS, the NSW EPA requested that L_{Amax} noise levels associated with the operation of the Rail link were assessed in accordance with the Application Notes of the *NSW Industrial Noise Policy* (INP).

The *Rail Infrastructure Guideline* (RING) provides specific advice on the assessment of L_{Aeq} noise levels from private non-network rail lines, such as the Rail link between the SIMTA site and the SSFL, but offers no such advice for the assessment of L_{Amax} noise levels. Therefore in the NVIA, L_{Amax} noise levels from the operation of the Rail link were assessed against an external trigger level of 80 dBA, recommended in RING for heavy rail.

Wilkinson Murray accepts that a more conservative approach may be warranted, particularly for receivers not subject to significant existing levels of L_{Amax} rail noise.

The INP Application Notes recommend that detailed assessments sleep disturbance adopt the guidance on potential impacts from the review of research results presented in the *NSW Road Noise Policy (RNP)*, and that they consider:

- How often the noise events will occur;
- Time of day (normally between 10.00pm and 7.00am); and,
- Whether there are times of day when there is a clear change in the noise environment (such as during early morning shoulder periods).

The RNP advises that:

"From the research on sleep disturbance to date it can be concluded that:

- *Maximum internal noise levels below 50-55 dB(A) are unlikely to awaken people from sleep*
- *One or two noise events per night, with maximum internal noise levels of 65-70 dB(A), are not likely to affect health and wellbeing significantly."*

To aid in assessing the potential for sleep disturbance, it is useful to convert the above internal noise levels to equivalent external noise levels. The attenuation of noise through a window left ajar, is approximately 10 dBA. Therefore, it is appropriate to say that, according to NSW Government noise guidelines, external L_{Amax} noise levels of below 60-65 dBA are unlikely to awaken people from sleep, and one or two noise events per night, with external L_{Amax} levels of 75-80 dBA are not likely to affect health and wellbeing significantly.

Noise events associated with the Rail link (as amended) will occur only during train movements. It is proposed that up to 5 trains would access the Stage 1 site per day, resulting in up to 10 noise events. Subject to activities on the Stage 1 site and at Port , the distribution of train movements throughout the day will be somewhat constant, and it is assumed that approximately 4 movements would occur during the night time (10.00pm – 7.00am) period.

Review of Table 2 indicates that in the absence of rail squeal, predicted external L_{Amax} rail noise levels marginally exceed 60-65 dBA at the most sensitive receiver locations in Casula, and are not significantly affected by the proposed amendment to the alignment of the Rail link. If significant rail squeal occurs, the results in Table 2 indicates that external L_{Amax} noise levels could exceed 60-65 dBA at sensitive receivers in Wattle Grove, Casula and Glenfield.

When assessing L_{Amax} noise levels in accordance with RING, the existing L_{Amax} noise levels from rail activities are considered, where applicable. RING recommends the consideration of reasonable and feasible mitigation measures in the case where L_{Amax} noise levels associated with a rail development exceed the trigger levels *and* exceed the existing L_{Amax} rail noise levels by 3 dB or more. Due to the proximity of sensitive receivers in Casula to the SSFL and Main Southern Lines, the existing L_{Amax} rail noise levels at these locations are likely to be in excess 65 dBA, and therefore mitigation of L_{Amax} rail noise levels from the Proposal may not be warranted. Some receivers in Wattle Grove, near the East Hill Line, are also likely to be subject to existing L_{Amax} rail noise levels in excess of 65 dBA. Existing rail noise levels are to be confirmed as part of the *Rail Noise Management Plan*.

The results presented above highlight the importance of mitigating rail squeal, as recommended in the NVIA and BPR. Subject to the avoidance of significant levels of rail squeal, the preceding assessment indicates that the operation of the Rail link is unlikely to result in sleep disturbance impacts.

Construction Noise and Vibration

The construction noise and vibration assessments presented in the NVIA concluded that construction noise levels would be below the Noise Management Levels (NML) at all sensitive receiver locations and that construction vibration levels would unnoticeable.

Construction vibration levels at sensitive receivers are unchanged by the proposed amendment to the Rail link alignment and will be unnoticeable.

Due to the amendment to the Rail link alignment, a portion of the construction activities associated with constructing the section of the Rail link between Moorebank Avenue and the Stage 1 site would move further west, and away from receivers in Wattle Grove (NCA1). However, the worst case scenario for the receiver locations in NCA1 most sensitive to noise from the construction of the Rail link would remain unchanged. For these receivers, rail construction activities in the vicinity of the southern boundary of the Stage 1 site will produce the highest noise levels, and the proposed change to the rail alignment will not alter this.

At some receiver locations in the southern part of NCA1, i.e. close to the East Hill Rail Line, construction noise levels associated with the establishment of the amended Rail link are predicted to reduce by approximately 1 dBA, with this not being noticeable.

Rail construction noise levels at receivers located in Moorebank, Casula and Glenfield would be unaffected by the proposed amendment to the Rail link alignment.

Construction noise levels associated with the proposed amendment to the Rail link alignment are predicted to remain below the NML at all sensitive receivers.

CONCLUSION

The preceding assessment of the proposed amendment to the alignment of the Rail link found no potential for the amended Rail link to result in significantly higher noise levels at any receiver locations, and found that the amended Rail link reduced the potential for noise impacts associated with rail squeal. Accordingly, it is recommended that the amended Rail link is pursued.

All recommendations (as relevant to the Proposal) made in the NVIA and BPR are considered suitable and therefore remain unchanged.

I trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully

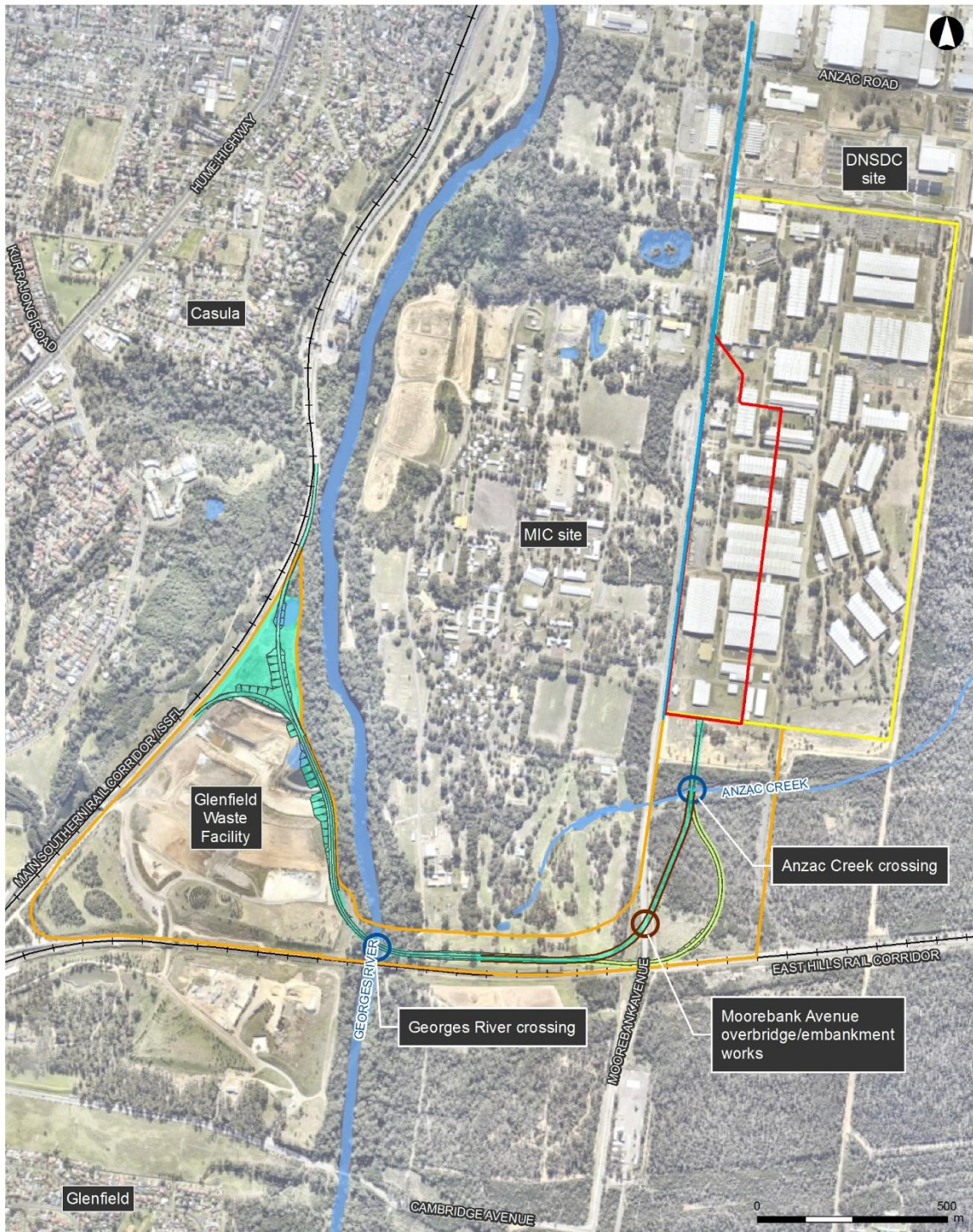
WILKINSON MURRAY



Nic Hall

Senior Engineer

Figure 1 Amended Rail Alignment



- LEGEND**
- SIMTA site
 - Operational area
 - Moorebank Avenue impact area
 - Rail Corridor
 - Rail link
 - Amended Rail link alignment
 - Rail link (including 20m width and variable buffer)
 - Previous Rail link alignment
 - Creek/River crossing
 - Road crossing
 - Existing railway
 - Watercourse

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Figure 1: Amended Rail link and overview of the Proposal